REMARKS

Applicants thank the Examiner for the thorough examination given the present application.

Status of the Claims

Claims 1-6 and 8-10 are pending in the above-identified application and stand ready for further action on the merits. In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Issues under 35 U.S.C. § 103(a)

Claims 1-3, 5, and 8-10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over **Isozaki** (U.S. Patent 6,337,369) in view of **Starzewski** (U.S. Patent 5,670,092).

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over **Isozaki** in view of **Starzewski** further in view of **DesMarais et al.** (U.S. Patent 6,362,244).

Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over **Isozaki** in view of **Starzewski** further in view of **Dempo** (U.S. Patent 5,512,178).

Applicants respectfully traverse. Reconsideration and withdrawal of each of the above rejections are respectfully requested based on the following considerations.

Legal Standard for Determining Prima Facie Obviousness

MPEP § 2141 sets forth the guidelines in determining obviousness. First, the Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors are:

(a) determining the scope and content of the prior art;

(b) ascertaining the differences between the prior art and the claims in issue;

(c) resolving the level of ordinary skill in the pertinent art; and

(d) evaluating any evidence of secondary considerations.

Graham v. John Deere, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

Second, the Examiner has to provide some rationale for determining obviousness. MPEP § 2143 sets forth some rationales that were established in the recent decision of *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007). Exemplary rationales that may support a conclusion of obviousness include:

(a) *combining prior art elements according to known methods to yield predictable results;*

(b) *simple substitution of one known element for another to obtain predictable results;*

(c) *use of known technique to improve similar devices (methods, or products) in the same way;*

(d) *applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;*

(e) *"obvious to try" – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success*

(f) *known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;*

(g) *some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.*

As the MPEP directs, all claim limitations must be considered in view of the cited prior art in order to establish a *prima facie* case of obviousness. *See* MPEP § 2143.03.

The Present Invention

Independent claim 1 recites:

> A method for producing a polarizing film comprising the step of dipping a polyvinyl alcohol film in/on which iodine is adsorbed and oriented in an aqueous solution containing boric acid at a temperature of 55 to 85°C wherein contact between the aqueous solution and oxygen is suppressed,

wherein a weight ratio of water:boric acid:potassium iodide in said aqueous solution containing boric acid is 100:(2-15):(2-20).

The present invention relates to a method for producing a polarizing film of a polyvinyl alcohol having no polyvinylene structure comprising dipping a polyvinyl alcohol film in/on which iodine is adsorbed and oriented in an aqueous solution containing boric acid in which the contact between the aqueous solution and oxygen is suppressed. Because the contact between the aqueous solution and oxygen is suppressed, the contrast of a polarizing film produced is significantly increased.

Prior to the present invention, it was not known to produce a polarizing film by dipping a film in an aqueous solution containing water, boric acid, and potassium iodide in a weight ratio of 100:(2-15):(2-20) at a temperature of 55 to 85°C while suppressing the contact of the aqueous solution with oxygen. Also, the effect of increasing the contrast of the polarizing film by such a production method was not known.

Distinctions Over the Cited References

Isozaki discloses a polarizing film comprising polyvinyl alcohol (PVA) having a polyvinylene structure. In the production method of **Isozaki**, the polyvinyl alcohol film is subjected to dry-heat stretching at a temperature of 100 to 250°C (col. 4, lines 1-5). During the stretching, the film may be discolored due to the oxidation of PVA. To avoid such discoloration, the dry-heat stretching is preferably conducted in an oxygen-poor atmosphere such as a nitrogen atmosphere or in vacuum (col. 4, lines 7-11).

Starzewski discloses a polarizing film based on polyvinyl alcohol containing polyacetylene as the light-polarizing substance. The POL-PVA film (a polarizing film of PVA which comprises polyacetylene as a dichroic substance) is heated at a temperature of between 100°C and 300°C (col. 2, line 66 to col. 3, line 12). Before the POL-PVA film is heated at such a high temperature, the PVA film is provided with a protective layer such as a silicate layer to avoid contact of the film with oxygen (col. 2, lines 22-27).

The Examiner asserts that **Starzewski** "teaches that a post-fixing heat treatment improves the polarization properties of the PVA film when performed in the absence of oxygen" (page 6, paragraph 11e). The Examiner further asserts that **Isozaki** and **Starzewski** disclose "the claimed invention except for wanting to suppress contact between the aqueous solution and oxygen. It would have been obvious to one having ordinary skill in the art at the time the invention was made to perform this suppression since it was known in the art that oxygen produces deleterious effects in the processing steps immediately surrounding it" (page 6, paragraph 11g). Applicants respectfully traverse these assertions.

The "post-fixing heat treatment" referred to by the Examiner is equivalent to the drying step described on page 8, lines 19-22 and page 10, line 21 to page 11, line 1 of the present specification ("dried at 50°C for about 4 minutes") because this treatment is the only heat treatment carried out after the treatment of the film with the aqueous solution of boric acid as described in the examples. However, this heat treatment is usually carried out in the atmosphere as disclosed on page 11, lines 2-8 ("the oxygen concentration in the gas in contact with the aqueous solution was maintained at 3% by volume or less from the preparation of the solution to the end of the dipping treatment" (emphasis added)). If any deleterious effect is caused in the post-fixing phase, the post-fixing phase must be carried out while suppressing the contact of the film with oxygen to avoid the deleterious effect.

According to the Examiner's combination of **Isozaki** and **Starzewski**, if the contact with oxygen is not prevented in the post-fixing heat treatment, it is meaningless to consider whether the dipping treatment should be carried out while suppressing the contact of a dipping solution with oxygen in order to avoid the deleterious effects in the post-fixing phase.

Independent claim 1 recites that "contact between the aqueous solution and oxygen is suppressed" (emphasis added). The suppression of the contact between the PVA film and oxygen is not a material feature of the method according to the present invention. As discussed above, the drying step in the present invention, which is equivalent to the post-fixing heat treatment referred to by the Examiner, is carried out in the atmosphere without suppressing or preventing the contact of the PVA film with oxygen.

Furthermore, the Examples and Comparative Examples in the present specification provide evidence that the method of the present invention achieves unexpectedly superior effects, such as the improvement of contrast by suppressing the contact of the aqueous solution containing boric acid with oxygen.

Isozaki discloses, "The dry-heat stretching is preferably conducted in an oxygen-poor atmosphere such as a nitrogen atmosphere or in vacuum, because there is a possibility of discoloration due to the oxidation of PVA" (col. 4, lines 7-11). **Starzewski** discloses, as the effect of the suppression of oxygen, that the "object of the present invention is to avoid blue leakage without impairing the other good properties of POLPAC film. For this, the degree of polarization of high transmittance POLPAC films in the wavelength range of 400-500 nm was to be increased" (col. 1, line 65 to col. 2, line 3). However, neither **Isozaki** nor **Starzewski** disclose the unexpectedly superior result of the improvement of contrast achieved by the present invention.

As discussed above, **Isozaki** in view of **Starzewski** do not disclose each and every aspect of the pending claims. Applicants respectfully submit that **DesMarais et al.** and **Dempo** do not cure the above noted deficiencies of **Isozaki** and **Starzewski**. As such, each of pending claims 1-6 and 8-10 are also patentable and non-obvious over these cited references, even when combined with the disclosures of **Isozaki** and **Starzewski**.

As stated in *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007), "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Furthermore, the mere fact that references ***can*** be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *Id.* As described above, Applicants have shown that the present invention achieves unexpected and unpredictable results.

To establish a *prima facie* case of obviousness of a claimed invention, all of the claim limitations must be disclosed by the cited references. As discussed above, **Isozaki** in view of **Starzewski**, with or without the other cited references, fail to disclose all of the claim limitations of independent claim 1, and those claims dependent thereon. Accordingly, the combination of references does not render the present invention obvious.

Furthermore, the cited references or the knowledge in the art provide no reason or rationale that would allow one of ordinary skill in the art to arrive at the present invention as claimed. Therefore, a *prima facie* case of obviousness has not been established, and withdrawal of the outstanding rejections is respectfully requested. Any contentions of the USPTO to the contrary must be reconsidered at present.

Conclusion

Based on the amendments and remarks presented herein, the USPTO is respectfully requested to issue a Notice of Allowance in the matter of the instant application clearly indicating that each one of instantly pending claims 1-6 and 8-10 is allowed and patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad M. Rink, Reg. No. 58,258 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By _____

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